

Electric Light & Power

THE NEWS MAGAZINE OF ELECTRIC UTILITY MANAGEMENT AND TECHNOLOGY

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AZP Group buys Arizona's largest savings bank for \$440M

PHOENIX—AZP Group, Inc., the holding company for Arizona Public Service Co., announced in June its intention to purchase the state's largest savings bank for approximately \$440 million.

Keith Turley, AZP Group chairman and chief executive officer, said in a statement that his company would acquire MeraBank's 8.7 million shares for \$51 per share.

Will become subsidiary

Under the agreement, MeraBank would become a wholly-owned subsidiary of AZP. The bank would retain its current management group. The companies said the acquisition is subject to the approval of the bank shareholders and the Federal Home Loan Bank Board, and should be finalized in late 1986 or early next year.

AZP Director of Corporate Planning Arlyn Larson told *EL&P*, "The opportunity to acquire came to us. We weren't out searching for a savings bank." He added, "We know these people. They have relatively the same customer territory as APS (Arizona Public Service)."

Special provisions

Larson stressed that the bank will have no relation to AZP's utility subsidiary. He said the agreement contains special provisions that state no utility money can be involved in purchasing the bank.

In addition to the utility, AZP is the holding company for SunCor Development Co. (real estate), Malapai

Resources Co. (uranium) and El Dorado Investment Co. (venture capital). AZP Group has assets of \$5.5 billion.

"AZP views this acquisition as an important step in our diversification strategy," noted Turley. "MeraBank is a sound, well-managed financial institution with an excellent growth record and future potential."

Larson explained that AZP's criteria for any new subsidiary is that it must be able to contribute 10 percent of consolidated earnings within a few years of being bought.

Excellent prospects

"Our judgement indicates that MeraBank is extremely strong," said Larson. "They have excellent prospects for growth."

MeraBank, which is based in Phoenix, is Arizona's third largest financial institution with assets of \$5.2 billion. It has 69 branches in Arizona and six in Texas. In addition, it provides financial services in California, Colorado, Nevada, New Mexico, Oklahoma and Utah.

Gene Rice, chairman and chief executive officer of the bank, said, "The directors and managers are pleased to recommend this offer to our stockholders. AZP will be a great owner. We have common interests and the financial strength of the combined companies can only improve our growth and earnings potential."

If the deal closes after Dec. 8, AZP said the purchase price will be subject to an upward adjustment.

Test center will be cornerstone of U.S. pollution control efforts

BARKER, NY—The world's most advanced facility for developing and testing advanced pollution control technologies on eastern, high sulfur coal should be operating in December, according to the Electric Power Research Institute.

At a press briefing in June, EPRI Senior Vice President Richard Balzhiser said the \$65 million High Sulfur Test Center (HSTC) here will be the cornerstone of a research effort by U.S. electric utilities to develop and improve air pollution control systems on fossil-fired power plants.

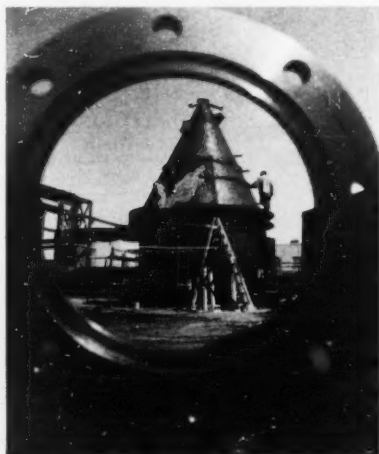
"Reducing the cost of keeping America's air and lakes clean is one of the major goals of the High Sulfur Test Center," he stated.

Research goals for the center include reducing the complexity and cost of present air pollution control systems and developing more effective methods of controlling pollutants caused by burning high sulfur coal.

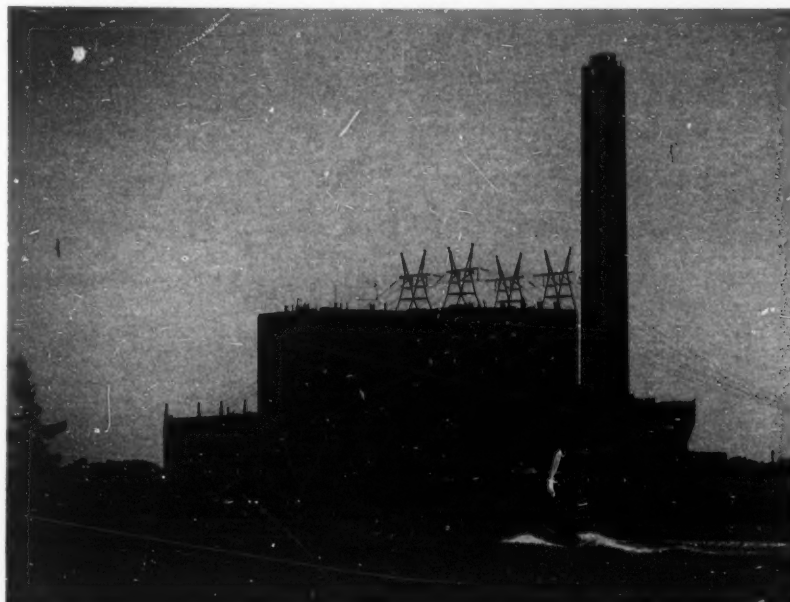
Located at New York State Electric & Gas Corporation's Somerset station near Buffalo, the HSTC consists of two buildings on 17,000 sq ft. It contains laboratories and a 92-ft high structure for flue gas experiments.

Balzhiser told reporters and state and local government officials that EPRI's research shows that a 3-4 percent improvement in the reliability of air pollution control systems can save several million dollars yearly in operation.

Continued on page 12



A workman inspects the spray dryer at the High Sulfur Test Center, under construction at the Somerset Power plant near Buffalo.



Comm. Energy heads Top 100

Commonwealth Energy had the best heat rate in the nation in 1985, according to *EL&P*'s annual Top 100 operating report. Canal 1, shown here, is the company's most efficient generating unit. For a more detailed look at the Top 100 investor-owned electric utilities, turn to the story that begins on p.17.

Competitive bidding urged for some utility contracts by GSA

WASHINGTON, D.C.—If a recent proposal of the General Services Administration (GSA) is adopted, government facilities would be required to put up their electricity service for competitive bid.

The proposal will face strong opposition from the electric utility industry and several members of congress. The change first came to light in a May 7, 1986 proposed rule in the Federal Register. GSA also would be required to competitively obtain gas, water, sewage and steam services.

Proposed by the GSA, the Department of Defense, and the National Aeronautics and Space Administration, changes would be made to the Federal Acquisition Regulations (FAR) governing utility services procurement.

GSA said the proposal came as a result of the Competition in Contracting Act of 1984, which says federal agencies must procure all goods and services competitively.

According to the Edison Electric Institute, local utility customers would be most adversely affected by the proposal. EEI said if federal customers are lost, utilities will have to increase rates to its remaining consumers to pay for the capacity it had built to serve the government facilities.

Also, EEI said that if federal customers are allowed to shop for their service it will complicate the task of future supply planning. The result, said the association, could be gaps in supply adequacy and reliability and uncertain electric rates.

EEI asked for and received an ex-

tension to the comment period for the proposal. The GSA has set a Sept. 5 deadline for comment on the proposal. The utility trade group will be asking that the FAR proposal be dropped.

In a June 17 letter to GSA Administrator Terence C. Golden, House Appropriations Committee Chairman Jamie L. Whitten (D.MS), and members of the committee.

Continued on page 11

Mid-year financings by electric utilities 124% more than '85

NEW YORK—Total financing by investor-owned electric utilities in the first half of 1986 amounted to \$13.0 billion, 124 percent higher than in the same period last year, said Ebasco Business Consulting Company.

In its *Analysis of Public Utility Financing*, Ebasco said long-term debts issued by electric utilities in the first six months rose from \$4.4 billion in 1985 to \$11.6 billion.

Preferred stock financings by electric utilities totalled \$803 million in 1986, compared to last year's \$295 million during the same period.

Common stock offerings plunged from \$1.1 billion in the first half of 1985 to this year's total of \$517 million.

Total financing by all types of investor-owned utilities amounted to \$20.8 billion for the six months, 170 percent higher than 1985's total of \$7.7 billion.

Five utilities receive APPA energy innovator awards

● The American Public Power Association presented five utilities with energy innovator awards at its national conference in Toronto. Receiving awards were Anaheim (CA) Public Utilities Department, Eugene (OR) Water and Electric Board, Grant County (WA) Public Utility District, Palo Alto (CA) Municipal Utility and Memphis (TN) Light, Gas and Water Division. The utilities were cited for outstanding advances in the development or application of highly creative energy-efficient techniques or technologies.

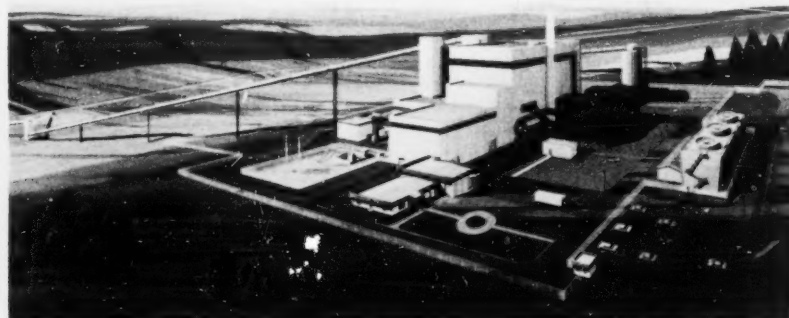
LADWP to end 50-year operation of Hoover Dam Power Plant

● The Los Angeles Board of Water and Power Commissioners said that on June 1, 1987, the United States Bureau of Reclamation will take control of the 13 generating units at the Hoover Dam Power Plant. The Los Angeles Department of Water and Power has operated the units since 1935. The bureau will also control the four units currently operated by Southern California Edison Co., according to the Commissioners.

PSC delays decision on Midland nuclear plant conversion

● The Michigan Public Service Commission said it will delay its decision until the fall, on whether Consumers Power Co. can spend funds to convert the idled Midland nuclear plant into a combined-cycle natural gas plant. Consumers Power Chairman and CEO William T. McCormick, Jr. said, "The company remains convinced that Michigan will need the power that Midland can provide...."

Ground broken for new fluid bed cogeneration plant in PA



An artist's rendering of the \$130 million John B. Rich Memorial power station in Gilberton, PA. Construction on the circulating fluidized bed boiler for the 80 MW cogeneration plant is expected to begin in October. Using Pyropower Corporation's Ahlstrom Pyroflow technology, the station will be fueled by anthracite culm. Electricity from the plant will be sold to Pennsylvania Power & Light and steam will be used in an adjacent industrial park. Owned by Gilberton Power Co., the station is a joint venture of Pyropower, Bechtel Development Co., and Ri-Corp. Development Company. Pyropower said the station will be completed in Feb. 1988.

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EL&P readers whose responsibilities include both Generation and Transmission Distribution receive both technology sections. Other readers receive the technology section that applies to their respective area of responsibility. The Generation edition is indicated by a single dot (•) in the upper right corner of page 1; the T/D edition carries two dots (••). All readers receive EL&P's industry news section.

Presidential citations awarded to eleven utilities

● President Reagan cited 11 investor-owned utilities for their outstanding private sector initiatives. Citations were given to Baltimore Gas and Electric Co., Cleveland Electric Illuminating Co., Commonwealth Edison Co., Consumers Power Co., Dayton Power & Light Co., Delmarva Power & Light Co., Duke Power Co., Hawaiian Electric Co., New Orleans Public Service Co., Puget Sound Power & Light Co., and Virginia Power. Reagan commended the recipients for their "organizational expertise and knowledge on the marketplace to focus on new opportunities to promote community partnerships."

Westinghouse wins Singapore energy management contract

● The Public Utilities Board of Singapore has awarded a \$10.6 million contract to Westinghouse Electric Corp. to supply a computer-based system for managing and controlling Singapore's electrical energy generation and transmission operations. According to Westinghouse, the system will provide economical generation and delivery of power, as well as automatic real-time assessment of power system security.

Sen. Byrd given first Outstanding Coal Legislator Award

● The National Coal Association (NCA) honored Senator Robert C. Byrd (D.WV) with its first Outstanding Coal Legislator Award. In presenting the award NCA Chairman Richard Holsten said Byrd was chosen for his "leadership in making clean coal technology a reality. His contributions," Holsten continued, "have been wide ranging and his service to the industry has been broad and deep."

GPU says largest drill sample yet, obtained from TMI-2 core

● GPU Nuclear Corp. said a six ft long drill sample of stratified core debris was obtained from the reactor at Three Mile Island Unit 2. The sample, according to GPU Nuclear, is the largest extracted so far, and will be analyzed at the U.S. Department of Energy's Idaho National Engineering Laboratory over the next several months. GPU Nuclear analysts are currently reviewing video tapes and other data from the drilling program to plan for removal of the remaining core material.

Public Service of NM denied holding company application

● At press time, Public Service of New Mexico (PNM) announced that it had been denied an application to form a holding company by the New Mexico Public Service Commission. PNM Senior Vice President and Secretary J.B. Mulcock, Jr. said that the decision was "extremely disappointing," but that PNM would not have any further comment until the commission had issued its order and the company had a chance to review it.

AIF urges vacationers to visit a nuclear power plant

● The Atomic Industrial Forum (AIF) is suggesting that Americans vacationing in the U.S. this year take an "energy break" during their trip to visit a nuclear power plant. AIF says that there are over 90 energy information/visitor centers in the U.S. and Canada that provide guided tours of plants, movies, slide shows, demonstrations, video programs and lectures. "One of the reasons Americans are taking to the highways this summer is the abundance, and low cost, of gasoline," said AIF President Carl Walske, "OPEC officials themselves acknowledge that nuclear energy is responsible for the permanent loss of market for about six million barrels a day of OPEC oil. What better time than this to learn how it happened?" Walske also pointed out that, "Many Americans are concerned about the accident at the Soviet nuclear power plant. A visit to one of ours will provide an opportunity to learn first-hand about U.S. safety features."

KG&E earns communication honors

● Kansas Gas & Electric Co. (KG&E) earned a "Forthright Communications" citation from Reddy Communications, Inc. in Reddy's annual electric utility industry report competition. KG&E was one of 130 companies competing for the citation. Judges said the report merited special attention because its design and execution fitted the company's situation.

CG&E completes life extension for electric generating unit

● Cincinnati Gas & Electric Co. (CG&E) said it has become the nation's first utility to complete a total life extension program for an electric generating unit. Unit 3 of CG&E's Beckjord Station, which began operating in 1954, was rejuvenated during a shutdown in October 1985. According to the company, Unit 3 was returned to service in January 1986 and is currently operating at its full 135 MW capability. CG&E estimates that the \$13 million life extension program should enable the unit to operate for another 25 years.

Johnson resigns as BPA administrator

● Bonneville Power Administration (BPA) Administrator Peter T. Johnson resigned last month citing personal reasons for leaving his five-year post, according to the Department of Energy. "As a key member of the Reagan Administration's energy team, Peter Johnson has helped enhance the financial stability and viability of the Bonneville Power Administration and the region it serves," said Secretary of Energy John S. Herrington. Herrington has named James J. Jura to succeed Johnson as administrator. Jura, formerly executive assistant administrator, has been with BPA since 1978.

Unthinking, uncaring or smug, CECo deserves customers' ire

When Commonwealth Edison's 2.7-million customers received their June bills, they received a double shock. Without notification or warning, the company initiated its summer rates, which are some 67-percent higher for the four summer months than the rest of the year. Moreover, the company added a new item on its bills—a monthly customer charge of \$10.64. The service charge was not explained, nor were customers warned ahead of time, creating a customer relations and credibility problem that may plague the utility for some time... Herein lies a lesson for the entire industry.

As a result of CECo's double whammy, bills of most customers jumped. Even without air conditioning being used, *EL&P* was told, bills have doubled...or more. Customers and organized consumer groups were outraged. They called CECo. They wrote letters. The newly formed Citizens' Utility Board swore action, and began by complaining to the media. Newspapers took up the torch...with banner headlines. Radio and TV joined in.

To add fuel to the fire, CECo spokespersons, when asked, evidenced surprise at all the furor. The company's summer rates have existed for several years, they said. And the customer charge has been included in the energy charges for some time; it just had never been pulled out of the total and identified. The charge was for meters and lines involved in serving customers, consumers and reporters were told.

No apologies. No attempt to explain why now, without warning, the service charge appeared on the bill. No explanation of why it had been included in the energy charge before, and now that it was taken out, why the rate for energy didn't seem to go down. To John Q. Customer, it was another case of Big Business putting it to the little guy...and if he doesn't like it, tough!

We find Commonwealth Edison's actions to be disappointing. Shouldn't common corporate courtesy have suggested a gentle warning note on a prior bill (CECo uses a two-part card bill, not a bill in an envelope) to encourage conservation in the light of the higher summer rates that were about to go into effect? Certainly, key executives in the past have always demonstrated a spirit of dedication to service and the interests of its customer. It is hard to reconcile that spirit with what was allowed to happen with summer billings. It is difficult to believe that company leadership would consciously allow something so obviously inflammatory as an unexplained service charge to be applied to their customers' bills without an explanation. But it happened. Summer rates just went into effect and the charge was applied. There was no explanation and there was no prior warning.

Are we to assume that CECo executives didn't know that the change to summer rates was being made without warning? Could something so pervasive and so sure to raise the ire of customers have been carried out without top management knowledge and approval? Did someone down the corporate ladder a rung or two forget that customers might want to know why they were being assessed a customer charge? Did they decide that commission approval of higher summer rates relieved them of any responsibility to warn customers of their imposition each year? Have they decided that CECo actions are above question? With several of its almost-finished nuclear units currently under a commission order to show cause why they should not be eliminated from rate base consideration because of lack of need and what their inclusion would do to customer rates in the future, wouldn't it have been in the company's self-interest to avoid further unnecessary customer irritation? Was company management ignorant of the effects of their actions? Or knowing of what was being done (or rather, not being done) did company management just not give a damn?

There is no question that utility economics and rates are complex and difficult to understand for the uninitiated. That complexity, plus the confusion and difficulty customers have in realizing how much electricity they actually use, makes it all the more important for utilities to continue efforts to inform customers about their rates, and about any changes in those rates.

It is said that ultimately we all get what we really deserve. If so, Commonwealth Edison is in for some trying times. They've certainly gone out of their way to earn them. For the balance of the industry the lesson should be clear: be considerate of your customers, keep them up-to-date on utility matters that will affect them and, especially, warn them in advance of any changes in services or rates they depend on and are used to.

Robert A. Lincicome, *EL&P* Editor-in-Chief

NERC projects peak growth

OVERVIEW 1986-1995 PROJECTIONS				
Demand				
	Summer	1986	1995	Annual Growth Rate (%)
Peak Hour Demands (Thousands of MW)	NERC-U.S.	475	577	2.2
	NERC-Canada	47	61	3.0
	NERC-Mexico	0.6	1.2	7.1
	NERC-Total	523	639	2.3
	Winter	1986/87	1995/96	
Peak Hour Demands (Thousands of MW)	NERC-U.S.	435	533	2.3
	NERC-Canada	65	83	2.8
	NERC-Mexico	0.4	0.8	7.1
	NERC-Total	500	618	2.4
	Annual	1986	1995	
Net Electrical Energy for Load (Millions of MWh)	NERC-U.S.	2,525	3,103	2.3
	NERC-Canada	350	462	3.1
	NERC-Mexico	3.0	5.6	7.3
	NERC-Total	2,878	3,571	2.4
Supply				
	Summer	1986	1995	Annual Growth Rate (%)
Planned Capacity Resources (Thousands of MW)	NERC-U.S.	636	715	1.3
	NERC-Canada	85	96	1.4
	NERC-Mexico	0.8	1.2	5.1
	NERC-Total	721	812	1.3
	Winter	1986/87	1995/96	
Planned Capacity Resources (Thousands of MW)	NERC-U.S.	655	727	1.2
	NERC-Canada	87	100	1.6
	NERC-Mexico	0.9	1.2	4.3
	NERC-Total	743	828	1.2

Source: "1986 Electric Power Supply & Demand," NERC, June 1986.

In an advance release of projections for the period of 1986-1995, the North American Electric Council predicts that aggregated peak hour demand for North America will grow at a rate of 2.4 percent a year. NERC said annual net energy for load will increase 2.3 percent a year in the U.S., while planned capacity additions will rise at a rate of only 1.3 percent a year over the period. A more detailed report will be published by NERC in the near future.

SCANA forms new subsidiary

COLUMBIA, SC—SCANA Corp., the parent of South Carolina Electric & Gas Co., is forming a new subsidiary to develop and market computer software systems and services. The new unit has begun operations under the name SCANA Software Services, Inc.

New technologies

According to John A. Warren, SCANA chairman and chief executive officer, corporate management is excited about the new operation be-

cause it will utilize existing in-house skills and, at the same time, be involved in new technologies. This, he said, will allow the company to "utilize products we've already developed and are in the process of developing."

SCANA president Lawrence M. Gressette, Jr., who also will serve as president of the new company, said the new company's products and services will be geared toward the electric utility industry, but not be limited to it. "We will be open to any venture that will be beneficial to SCANA," he said.

Low-cost venture

Gressette noted that the new diversification will be a low-cost, low-risk venture that will benefit both customers and shareholders since it will allow South Carolina Electric & Gas Co. to purchase software systems from the new company for less than the cost of developing those programs in-house.

Correction

An article in the June issue of *EL&P* entitled "Fluid-bed projects underway at T-NM Power, Montana-Dakota" (p.29) contained an error. Combustion Engineering, not Westinghouse, will supply the four 150 MW boilers for Texas-New Mexico Power Company's proposed fluidized-bed power plant.

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THE TOP

100

electric utilities' 1985 operating performances

Don Minner
Associate Editor

Gas and oil consumption fell in 1985...coal usage rose...peak demand was higher...and generating capacity increased.

Those are among the highlights of *EL&P's* annual review of 1985 operating data from the nation's 100 largest investor-owned utilities. The information is taken from their Uniform Statistical Reports. Individual utility data are shown on the large tables on the following pages and summaries can be found in the smaller tables.

Fossil fuel consumption changes are highlighted in Table 1. Coal usage increased approximately 8 percent in 1985, a substantial change from 1984's decrease. According to the National Coal Association (NCA), coal now accounts for approximately 56 percent of all the electricity produced in the United States.

In its annual forecast, the association predicts that utility coal consumption will grow at a relatively slow pace of 1.5 percent per year to 1990, due to new nuclear plants coming on line, then will increase to 2.4 percent annually from 1990 to 2000. NCA believes that electricity generation will rise by 2.1 percent annually over the period. Because of an expected increase in nuclear capacity between 1984 and 1990, NCA predicts coal's share of electricity generation will drop from 55.8 percent to about 52.9 percent by 1990 before rising again.

Oil usage drops

Oil consumption decreased again last year for the top 100, although not as much as in 1984, reflecting the lower prices in late 1985. Gas usage, which had risen in 1984 for the first time in several years dropped last year. Even so, the gas industry has hopes that it can retain and improve its share of the electric utility market. After the oil price run-up in 1979 and 1980, gas usage rose until its price began increasing in 1982.

Daniel A. Dreyfus, an analyst with The Gas Research Institute, recently noted in a speech that electric utilities currently account for almost 20 percent of U.S. natural gas demand. He said that if oil prices continue to remain low, the emerging capacity shortfall in the 1990's will be addressed by greater operation of existing oil-fired capacity. Dreyfus point-

ed out that existing gas-fired capacity will also likely increase.

The Energy Information Administration predicted in its 1986 annual outlook for U.S. electric power that the oil and natural gas share of generation will drop from 16 percent in 1985 to 13 percent in 1988. EIA said their share is not expected to increase again until sometime in the 1990's, when new oil- and gas-fired turbines are used to meet peak demands.

Largest gas declines

Utilities with the largest declines in natural gas consumption in 1985 (among those consuming at least one billion cubic feet last year) were:

- Orange & Rockland Utilities...down 66 percent to 21.3 billion cubic feet,
- Dominion Resources...down 54 percent to 1.3 billion cubic feet,
- Kansas Power & Light...down 48 percent to 1.3 billion cubic feet,
- Public Service Electric & Gas...down 45 percent to 38.0 billion cubic feet,
- Sierra Pacific Power...down 33 percent to 3.3 billion cubic feet,
- El Paso Electric...down 32 percent to 14.6 billion cubic feet,
- Niagara Mohawk Power...down 20 percent to 18.2 billion cubic feet, and
- Commonwealth Energy...down 18 percent to 2.8 billion cubic feet.

Utilities that showed the largest declines in oil consumption last year (among those that burned at least one million barrels during the year) were:

- Commonwealth Edison...down 75 percent to 2.5 million barrels,
- Atlantic Electric...down 50 percent to 1.2 million barrels,
- FPL Group...down 48 percent to 11.5 million barrels,
- Philadelphia Electric...down 44 percent to 4.6 million barrels,
- Dominion Resources...down 40 percent to 1.4 million barrels,
- San Diego Gas & Electric...down 39 percent to 1.0 million barrels,
- United Illuminating...down 34 percent to 5.4 million barrels,
- Public Service of New Hampshire...down 31 percent to 2.4 million barrels,
- Orange & Rockland Utilities...down 28 percent to 1.3 million barrels, and
- Boston Edison...down 26 percent to 6.7 million barrels.

The EIA report says that coal and nuclear generation should provide most of the electricity generated in the nation from 1985 through 1995.

Coal use by the top 100 has been rising steadily since 1978's level of 420 million tons to 1985's 517 million tons. The coal industry is pinning much of its future hopes on the "clean coal" technologies currently being developed.

Congress's three-year, \$400 million Clean Coal Technology Program will provide financial assistance for developers of the technologies, which include fluidized bed combustion, gasification and flue gas desulfurization.

A Department of Energy request in Feb. 1985 for industry proposals resulted in the submission of 175 potential projects valued at more than \$8

billion. In April 1986, DOE received 51 proposals from industry for clean coal projects. DOE will announce who will receive the funds sometime this month.

Largest coal users

Here's how the largest coal users in the top 100 fared in 1985:

- Southern Company...up 11 percent to 44.0 million tons,
- American Electric Power...up 164 percent to 41.6 million tons,
- Texas Utilities...down 1 percent to 29.4 million tons,
- Detroit Edison...up 10 percent to 15.8 million tons,
- Allegheny Power...down 2 percent to 15.5 million tons,
- Commonwealth Edison...down 5 percent to 13.7 million tons,
- Central & South West...up 15 percent to 13.1 million tons,
- PacifiCorp...up 15 percent to 12.7 million tons, and
- Duke Power...up 4 percent to 10.3 million tons.

Median heat rate

The large table showing individual company fuel consumption also ranks the top 100 by system heat rate. Utility thermal efficiency continues to improve, sustaining a trend started several years ago. Beginning in 1982 when the median was 10,790 Btu/kWh, it has improved to 10,650 in 1983, 10,616 in 1984 and 10,605 in 1985.

As was true in the past several years, the most efficient utilities are generally the same with a few changes. Commonwealth Energy, which was the most efficient utility in 1985, 1984 and 1982, was ranked second in 1983 and 1981. Consumers Power which ranked second in 1985, has not been in the top five over recent years. Duke Power, which was the most efficient utility in 1983 and 1981, was ranked third in this year's review.

Although sometimes taken to task for publishing the heat rate rankings, *EL&P* believes that there are some utility systems similar enough to make meaningful comparisons. Also, because of the rankings, informal competitions between companies have been started that can only benefit the utilities.

The 20 most efficient base-loaded generating units in the country as reported in the Uniform Statistical Reports are shown in Table 4. Table 5 lists the leaders in fossil-boiler heat

TABLE 1
FOSSIL FUEL CONSUMPTION

	1984	Change	1985	Change
Coal (million tons)	477	-0.4%	517	+8.4%
Oil (million bbl)	190	-16.7%	171	-10.0%
Gas (billion cu ft)	2764	+6.9%	2644	-4.3%

TABLE 2
PEAK DEMAND AND RESERVE MARGINS

	1984	Change	1985	Change
Seasonal peak (MW)	383,377	+1.3%	393,264	+2.6%
Total system capability (MW)	476,664	+0.5%	481,053	+0.9%
System reserve margin	24.3%		21.9%	
Total owned capability (MW)	449,432	+1.4%	461,254	+2.6%
Owned reserve margin	17.2%		17.2%	
Average load factor	59.6		59.9	

TABLE 3
TYPE OF GENERATION (MW)

Type	1984	Change	1985	Change
Conventional steam and combined cycle	340,911	+0.7%	354,850	+4.1%
Hydro and pumped storage	24,731	+0.5%	27,987	+13.2%
Gas turbines and internal combustion	34,346	-8.4%	34,258	-0.3%
Nuclear	51,608	+10.7%	58,741	+13.8%
Total	451,596	+0.9%	475,836	+5.4%

HEAT RATES AND FUEL CONSUMPTION

Company	Rank	Heat Rate (Btu/kWh)	Up or Down	Fuel Consumption			Percent Change In		
				Coal (1000 tons)	Oil (1000 bbl)	Gas (1000 MCF)	Coal	Oil	Gas
Commonwealth Energy	1	9,711	U	0	6,779	2,788	-	-6	-18
American Electric Power	2	9,882	D	41,567	0	24	+64	-100	+100
Duke Power	3	9,900	U	10,255	7,491	152	+4	-	-17
Dayton Power & Light	4	9,910	D	4,516	6	164	+2	-25	+42
Florida Progress (FPC)	5	9,928	D	5,051	6,886	7,950	+32	+47	+36
Cincinnati Gas & Electric	6	9,971	D	7,426	864	87	+2	+130	+2
Detroit Edison	7	9,990	-	15,670	688	10,574	+10	-6	+31
Allegheny Power	8	10,016	D	15,501	0	0	-2	-	0
Consumers Power	9	10,020	U	6,037	201	301	-4	-39	-16
Southwestern Public Service	10	10,025	D	6,993	8	45,127	+37	-50	-38
United Illuminating	11	10,054	U	774	5,361	0	+100	-34	0
New York State Electric & Gas	12	10,093	D	6,051	14	0	+18	-33	0
New England Electric*	13	10,117	U	2,967	7,941	2,532	-9	+3	-32
SCANA*	13	10,117	U	4,025	10	289	+7	-	+72
Toledo Edison	15	10,124	D	2,260	3	78	+12	-25	-14
Illinois Power	16	10,158	U	7,663	65	303	+5	-11	-18
Public Service of Indiana	17	10,186	U	11,920	2	0	-10	+100	0
Southern Company	18	10,187	D	44,035	180	6,094	+11	+227	+42
Central Illinois Light	19	10,223	D	2,145	0	7	0	0	-80
Teco Energy	20	10,246	D	6,210	702	0	+23	-47	0
Potomac Electric	21	10,268	U	6,141	3,915	0	-8	+16	0
Carolina Power & Light	22	10,286†	U	9,359	90	1,139	-12	+500	+37
Union Electric	23	10,305	U	10,148	24	343	-14	-35	-31
Houston Industries	24	10,331	U	10,481	56	329,865	+13	+22	-9
Sierra Pacific Resources	25	10,332	U	687	9	3,252	+53	+50	-1
Central Hudson Gas & Electric	26	10,339	U	0	5,424	4,720	0	-10	-7
Central & South West	27	10,365	D	13,055	173	280,422	+15	+10	-4
Long Island Lighting	28	10,368	D	0	15,946	28,083	-	+3	-4
Cleveland Electric Illuminating	29	10,387	D	6,699	143	0	+8	+93	-
Midwest Energy	30	10,393	D	1,923	9	317	+3	-31	-12
Boston Edison	31	10,409	U	0	6,724	33,721	-	-26	+69
Utah Power & Light	32	10,411	D	8,050	87	225	+6	-	-26
Eastern Utilities Associates	33	10,420	U	516	2,680	54	+32	-2	+100
Central Illinois Public Service	34	10,451	D	5,106	14	0	-3	-52	0
Pennsylvania Power & Light	35	10,469	U	10,987	7,473	0	-1	+8	0
Hawaiian Electric	36	10,473	U	0	10,701	0	0	0	0
Gulf States Utilities	37	10,502	D	2,633	38	145,803	+50	-42	-1
Wisconsin Power & Light	38	10,509	D	3,628	22	49	-10	-55	-46
Dominion Resources	39	10,510	D	8,025	1,415	1,303	-6	-40	-54
Idaho Power	40	10,512	D	3,097	1	21	+49	-	-
IPALCO	41	10,521	U	4,830	79	0	-7	68	-1
Louisville Gas & Electric	42	10,532	D	3,743	0	327	+3	-	-63
Niagara Mohawk Power	43	10,539	U	2,970	5,016	18,187	-7	-22	-20
Atlantic Electric	44	10,548	U	1,070	1,159	72	-10	-50	-95
Central Louisiana Electric	45	10,557	D	683	0	40,150	-3	-100	+37
Pacific Gas & Electric	46	10,571	D	0	810	265,146	-	-3	+7
Savannah Gas & Electric	47	10,572	U	855	38	487	+1	+192	-1
Orange & Rockland	48	10,574	U	0	1,327	21,281	0	-28	-66
Ohio Edison	49	10,600	U	11,496	22	0	+9	+5	0
Delmarva Power & Light	50	10,605	U	2,751	2,480	5,742	-6	-23	+8
Baltimore Gas & Electric	51	10,608	D	3,460	2,031	841	+5	-13	+15
Central Maine Power	52	10,610	D	0	2,378	0	0	-5	0
Southern California Edison	53	10,615	D	3,170	2,331	274,917	-39	+111	+21
Kansas City Power & Light	54	10,635	D	5,426	88	246	-6	-7	-68
Public Service of New Hampshire	55	10,640	U	1,428	2,429	0	+19	-31	0
General Public Utilities	56	10,647	U	7,109	671	11,456	+3	-48	-57
Rochester Gas & Electric	57	10,667	U	771	489	38	-3	+16	-80
Southern Indiana Gas & Electric	58	10,679	U	2,072	0	171	-1	0	-58
Duquesne Light	59	10,680	D	4,649	117	0	0	+50	-100
Northern States Power	60	10,682	D	7,545	32	448	+1	+10	-2
Public Service Electric & Gas	61	10,712	U	4,295	7,052	37,991	+17	+18	-45
FPL Group (F&L)	62	10,734	U	0	11,547	113,762	0	-48	+5
Northeast Utilities	63	10,753	D	381	12,007	4,667	-6	-7	-18
San Diego Gas & Electric	64	10,779	U	NA	1,075	43,242	0	-39	-11
Madison Gas & Electric	65	10,785	D	768	4	784	-7	-20	-27
Tucson Electric Power	66	10,783	D	2,169	0	4,500	-4	-100	+86
Public Service of Colorado	67	10,828	D	6,842	30	1,308	-5	+15	-12
Pacificorp	68	10,838	D	12,711	69	0	+15	-7	0
Philadelphia Electric	69	10,839	D	2,576	4,620	1,038	+2	-44	-10
Iowa-Illinois Gas & Electric	70	10,842	D	1,882	12	805	-3	-14	-4
Kentucky Utilities*	71	10,844	U	4,838	1	2	+12	-50	-
Utilicorp United*	71	10,844	U	1,264	2	14	-13	-75	-82
Middle South Utilities*	73	10,847	D	7,846	229	230,982	+59	-22	-10
Northern Indiana Public Service*	73	10,847	D	4,320	45	751	-7	+10	-15
Washington Water Power	75	10,853	D	1,097	1,507	5,762	+6	-	-
Nevada Power	76	10,867	D	2,267	72	3,360	-12	+67	+4
Wisconsin Electric Power	77	10,875	U	6,153	145	246	+3	+44	-54
Oklahoma Gas & Electric	78	10,896	U	6,505	20	108,969	+2	-38	-9
AZP Group	79	10,910	U	6,353	169	16,538	-16	+360	+103
Wisconsin Public Service	80	10,918	U	3,058	30	27	+1	-62	+4
Iowa Resources	81	10,954	D	2,072	14	406	+4	+17	-39
El Paso Electric	82	10,970	U	284	1	14,628	-28	-	-32
Minnesota Power	83	10,992	U	3,291	0	0	-16	0	0
Texas Utilities	84	11,009	U	29,374	955	402,048	-1	+135	+10
Empire District Electric	85	11,041	U	1,188	7	596	-2	+17	-4
Puget Sound Power & Light	86	11,064	D	2,294	7	82	+8	+86	+244
Commonwealth Edison	87	11,126	U	13,885	2,535	3,636	-5	-75	+31
Consolidated Edison	88	11,129	D	0	15,088	82,593	0	-14	-6
Portland General Electric	89	11,166	U	862	1	0	-12	+100	-
Interstate Power	90	11,171	D	2,121	13	531	+8	-28	-44
Kansas Gas & Electric	91	11,184	U	2,922	1	11,863	-17	-	-41
Public Service of New Mexico	92	11,214	U	4,231	7	1,380	+5	-82	-
Montana Power	93	11,233	U	2,438	25	443	+24	+108	+28
Kansas Power & Light	94	11,298	D	5,944	15	1,279	+1	-44	-48
Iowa Electric Light & Power	95	11,502	D	931	14	133	+34	-7	-43
Otter Tail Power	96	11,700	U	2,057	2	0	+6	+50	0
Centel	97	12,219	D	874	3	4,594	+2	-40	-13
MDU Resources	98	12,309	D	1,574	8	15	+3	+3	-42
Central Vermont Public Service	99	13,229	U	88	46	0	+48	-2	0
TNP Enterprises	100	120,000	U	0	0	7	0	0	-69

*Tie †Doesn't include heat recovery of 768 MWH.

*Includes 586 barrels of coal/oil mixture.

*Wood

rate. (The effect on heat rates of nuclear units, gas turbines, and diesel engines is eliminated.)

In the second large table you will find data, summarized in Table 2, that shows peak demand rose a modest 2.6 percent in 1985. Continuing economic growth and a winter cold wave that gripped much of the country helped lead to the increase in peak demand.

Peak demand leaders

Leaders in peak demand growth were:

- Teco Energy...up 26.1 percent to 2,738 MW.
- FPL Group...up 22.0 percent to 12,533 MW.
- Florida Progress...up 19.7 percent to 5,813 MW.
- Dominion Resources...up 16.0 percent to 10,316 MW.
- Carolina Power & Light...up 14.4 percent to 7,502 MW.
- Duke Power...up 14.8 percent to 12,687 MW.
- El Paso Electric...up 13.0 percent to 877 MW.
- Public Service New Hampshire...up 12.9 percent to 1,357 MW.
- Atlantic Electric...up 10.6 percent to 1,432 MW, and
- Delmarva Power & Light...up 10.2 percent to 1,739 MW.

At press time, *EL&P* had just received Boston Edison's Uniform Statistical Report. In the USR, the company said its season peak was 2,416 MW, a 1.2% increase. However in its FERC 1 report, where we found the peak statistics for our tables, Boston Edison said its peak was 2,684 MW, a 12.4% rise.

1985 gains higher

The 1985 gains in peak demand were much higher than in 1984. Seven utilities made the top ten in 1984 with average gains of approximately 6 percent, while the tenth utility in 1985 had a 10.6 percent increase.

Summer weather was mild again in

TABLE 4
TOP GENERATING UNITS—
BY HEAT RATE
(CF > 50%)

Unit	Capacity (MW)
1. Belevs Creek 2	1,120
2. Marshall 3	630
3. Marshall 4	630
4. Canal 1	568
5. Marshall 1	385
6. Amos 2	800
7. Marshall 2	385
8. Campbell 3	719
9. Moss Landing 7	739
10. Morgantown 2	582
11. Trenton Channel 1	500
12. Crystal River 5	717
13. Campbell 1	265
14. Bay Shore 1	136
15. Sporn 5	450
16. Crystal River 4	717
17. Monroe 1	750
18. Bay Shore 3	142
19. Stuart 1	205
20. McMeekin 2	126

1985, but winter weather was more severe than in 1984. Winter peakers almost doubled from 1984's 17 to 30.

Seven of the top ten peak demand leaders are utilities located in the South; six of those are winter peakers, and the top three are Florida utilities. A January 1985 cold wave hit Florida and most of the South.

Continuing a trend that began in 1982, average load factor (unweighted) for the top 100 improved. Last year's 59.9 load factor compares with 59.6 in 1984, 57.7 in 1983 and 57.5 in 1982.

Generating capacity rose

Generating capacity rose modestly in 1985. The top 100's system capability growth rate slowed last year. In the past six years, the group averaged an increase of about 5,000 MW a year. But in 1985, system capability rose only about 4,400 MW.

System reserve margin continues its fall from a 1982 high of 29 percent to 22 percent in 1985. That follows a trend that began when the last recession bottomed out—system reserve margins of the 100 largest IOUs have been dropping at the rate of approximately two percentage points a year. This lends credence to the belief of many that now is the time to begin planning for future capacity additions.

The North American Electric Reliability Council says that it believes the installed generating capacity in the U.S. will be near the minimum acceptable levels in some regions by 1994.

In its forecast, the Energy Information Administration said capacity should grow at a rate of 1.2 percent a year, less than half the 2.7 percent a year growth predicted for electric energy demand. NERC predicts that summer peak demand in 1986 will be 475,000 MW and winter peak will hit 577,000 MW.

EIA reports that capacity will grow

PEAK DEMAND AND CAPABILITY

Company	Season Peak MW	% Change	Winter (W) or Summer (S)	Total System Capacity MW (at time of peak)	Total System Reserve %	Owned Capacity MW (at time of peak)	Owned Reserve %	Load Factor %
Allegheny Power Systems	6,035	+9.6	W	7,109	18	7,109	18	63.3
American Electric Power	20,263	-2.0	W	21,669	7	22,827	13	60.8
Atlantic Electric	1,432	+10.6	S	1,606	12	1,481	3	54.5
AZP Group	3,198	+7.7	S	3,257	2	3,029	-5	54.2
Baltimore Gas & Electric	4,365	+3.2	S	5,586	28	5,380	23	55.4
Boston Edison	2,884	+12.4	S	NA	NA	2,780	4	NA
Carolina Power & Light	7,502	+14.4	W	8,759	17	8,635	15	54.6
Centel	506	+4.8	S	NA	NA	661	9	NA
Central & South West	9,802	-0.3	S	12,832	31	12,729	30	58.2
Central Hudson Gas & Electric	739	+7.3	S	1,043	41	980	33	65.6
Central Illinois Light	834	-10.7	S	1,191	43	1,264	52	62.4
Central Illinois Public Service	1,653	-7.1	S	2,864	73	2,809	70	62.0
Central Louisiana Electric	1,065	+5.4	S	1,388	30	1,361	28	57.1
Central Maine Power	1,375	+6.8	W	1,557	13	965	-30	69.7
Central Vermont Public Service	420	+2.4	W	457	9	98	-77	64.0
Cincinnati Gas & Electric	3,316	+6.7	S	4,030	22	4,030	22	58.0
Cleveland Electric Illuminating	3,257	-3.4	S	3,244	0	3,244	0	67.5
Commonwealth Edison	13,255	-9.0	S	19,627	48	19,003	43	60.0
Commonwealth Energy	772	+9.8	S	837	8	225	-71	60.7
Consolidated Edison	7,670	+3.2	S	10,283	34	9,455	23	48.8
Consumers Power	4,733	-2.2	S	5,991	27	6,280	33	69.3
Dayton Power & Light	2,269	+7.7	W	2,687	18	2,687	18	58.5
Delmarva Power & Light	1,739	+10.2	S	2,223	28	2,223	28	60.5
Detroit Edison	7,172	-2.4	S	9,367	31	9,325	30	63.3
Dominion Resources	10,316	+16.0	W	11,071	7	10,353	0	54.4
Duke Power	12,687	+14.8	W	13,782	9	13,594	7	55.8
Duquesne Light	2,127	-2.1	S	2,692	27	3,063	44	63.3
Eastern Utilities Associates	738	+3.1	S	830	13	539	-27	58.8
El Paso Electric	877	+13.0	S	989	13	989	13	61.3
Empire District Electric	543	+3.6	S	624	15	622	15	55.0
Florida Progress (FPC)	5,813	+19.7	W	6,199	7	5,744	-1	43.9
FPL Group (FPL)	12,533	+22.0	W	11,889	-5	14,017	12	51.0
General Public Utilities	6,691	+4.5	S	9,606	44	7,807	17	NA
Gulf States Utilities	5,139	-6.1	S	6,610	29	6,034	-17	68.0
Hawaiian Electric	1,147	+1.4	W	1,537	34	1,495	30	71.9
Houston Industries	10,618	-2.1	S	13,913	31	12,318	16	60.0
Idaho Power	2,298	+4.5	S	2,717	18	2,537	10	61.0
Illinois Power	2,771	-13.8	S	3,519	27	3,770	36	64.3
Interstate Power	728	-3.4	S	953	29	950	29	63.6
Iowa Electric Light & Power	922	-4.7	S	1,148	25	1,048	14	56.7
Iowa Resources	1,110	-4.0	S	1,719	55	1,331	20	50.3
Iowa Illinois Gas & Electric	965	-2.9	S	1,531	59	1,534	59	51.7
IPALCO	2,044	0	S	2,396	17	2,396	17	59.9
Kansas City Power & Light	2,235	-2.7	S	2,937	31	2,937	31	49.0
Kansas Gas & Electric	1,549	-0.8	S	2,466	59	2,453	58	53.1
Kansas Power & Light	1,728	-4.1	S	2,552	48	2,672	55	52.0
Kentucky Utilities	2,453	+11.9	W	3,298	34	3,175	29	54.6
Long Island Lighting	3,380	+9.1	S	NA	NA	3,709	10	NA
Louisville Gas & Electric	1,812	+3.6	S	2,262	25	2,262	25	53.2
Madison Gas & Electric	410	-4.0	S	590	44	587	43	56.0
MDU Resources Group	350	-1.4	S	424	21	410	17	59.8
Middle South Utilities	10,870	+4.0	S	15,342	41	15,281	41	59.8
Midwest Energy	692	-9.9	S	1,245	80	1,245	80	53.9
Minnesota Power	1,059	+0.8	S	1,658	57	1,395	32	76.0
Montana Power	1,295	+6.1	W	1,511	17	1,314	2	99.0
Nevada Power	1,847	+7.2	S	1,903	16	1,741	6	48.7
New England Electric	3,555	+5.2	S	4,237	19	3,885	9	60.6
New York State Electric & Gas	2,290	+2.0	W	3,058	34	2,437	6	64.4
Niagara Mohawk Power	5,862	-6.0	W	7,803	33	5,320	-9	66.1
Northeast Utilities	4,340	+2.5	W	5,899	35	6,264	44	61.8
Northern Indiana Public Service	2,116	-6.9	S	3,452	63	3,052	44	62.8
Northern States Power	5,205	-6.1	S	6,788	30	6,057	16	68.0
Ohio Edison	4,084	-0.2	W	5,550	36	5,402	32	68.4
Oklahoma Gas & Electric	4,450	-5.3	S	5,702	28	5,656	27	51.3
Orange & Rockland Utilities	790	+2.9	S	1,011	28	1,011	28	50.3
Otter Tail Power	556	+1.8	W	594	7	582	5	58.9
Pacific Gas & Electric	14,403	+1.3	S	18,686	30	13,925	-3	60.4
Pacificorp	4,253	+0.2	W	5,517	30	3,919	-8	63.0
Pennsylvania Power & Light	4,981	-9.7	W	7,513	51	8,360	68	56.9
Philadelphia Electric	6,034	+1.8	S	6,190	3	7,599	26	57.7
Portland General Electric	2,899	+1.3	W	4,085	41	2,555	-12	55.9
Potomac Electric Power	4,682	+4.3	S	5,375	15	5,375	15	51.2
Public Service Electric & Gas	7,721	+4.0	S	9,040	17	8,999	17	51.6
Public Service of Colorado	3,054	+2.9	S	3,983	30	3,021	-1	70.9
Public Service of Indiana	3,673	+0.3	W	5,921	61	5,687	55	61.5
Public Service of New Hampshire	1,357	+12.9	W	1,666	23	1,285	-5	59.9
Public Service of New Mexico	861	-11.8	S	1,382	61	1,307	52	64.4
Puget Sound Power & Light	3,573	+2.6	W	4,141	16	1,647	-54	52.0
Rochester Gas & Electric	1,076	+0.1	S	1,511	40	1,133	5	65.4
San Diego Gas & Electric	2,334	-0.3	S	2,879	23	2,471	6	57.1
Savannah Electric & Power	498	+3.5	S	670	35	600	21	54.7
SCANA Corp.	2,703	+4.1	W	3,949	46	3,969	47	59.0
Sierra Pacific Resources	712	+0.6	S	904	27	814	14	70.8
Southern California Edison	14,587	-4.0	S	17,349	19	14,544	0	55.9
Southern Company	21,388	+7.7	S	24,932	17	25,607	20	57.4
Southern Indiana Gas & Electric	898	-0.4	S	917	2	917	2	67.4
Southwestern Public Service	2,864	+3.7	S	4,181	46	3,981	39	65.6
Teco Energy	2,738	+26.1	W	2,593	-6	2,593	-5	52.1
Texas Utilities	15,898	+4.1	S	18,614	17	17,804	12	56.2
TNP Enterprises	NA	NA	NA	NA	NA	NA	NA	NA
Toledo Edison	1,374	+3.5	W	1,754	28	1,711	25	66.7
Tucson Electric Power	1,118	+8.4	S	1,387	24	1,330	19	57.2
Union Electric	5,999	-8.3	S	7,898	32	7,764	29	56.0
United Illuminating	1,110	+11.1	S	1,170	5	1,170	5	56.7
Utah Power & Light	3,260	+1.0	W	2,925	-10	3,162	-3	71.8
Utilicorp United	718	-3.2	S	910	27	910	27	47.0
Washington Water Power	1,522	+3.6	W	1,875	10	1,340	-12	54.0
Wisconsin Electric Power	3,524	-4.3	S	4,575	30	4,575	30	84.0
Wisconsin Power & Light	1,371	-3.9	S	1,931	41	1,880	38	67.4
Wisconsin Public Service	1,220	+1.4	W	1,735	42	1,723	41	74.0

Heat rate (Btu/kWh)

Duke Power	8,900
Duke Power	8,959
Duke Power	9,036
Commonwealth Energy	9,107
Duke Power	9,140
American Electric Power	9,157
Duke Power	9,160
Consumers Power	9,165
Pacific Gas & Electric	9,207
Potomac Electric	9,209
Detroit Edison	9,220
Florida Progress	9,242
Consumers Power	9,256
Toledo Edison	9,259
American Electric Power	9,273
Florida Progress	9,289
Detroit Edison	9,312
Toledo Edison	9,323
Dayton Power & Light	9,326
SCANA	9,343

"Top 100 nuclear capacity continued growing. It increased 13.8 percent in 1985..."

much more slowly than electricity demand, because existing capacity will be adequate to meet most demand growth.

New nuclear, coal-fired, hydro, and pumped storage capacity were substantially higher in 1985 than in the previous year, as shown in Table 3. Gas turbine and internal combustion capacity declined slightly. Hydro and pumped storage capacity rose approximately 13 percent and gas turbine and internal combustion capacity went from -8.4 percent in 1984 to -9.3 percent in 1985.

Top 100 nuclear capacity continued growing. It increased 13.8 percent in 1985, 11 percent in 1984 and 8 percent in 1983.

Two top 100 utilities that are co-owners of the troubled Davis-Besse nuclear plant in Ohio apparently disagreed as to whether the plant is available or not. Toledo Edison lists the plant as part of its generating capability, while Cleveland Electric Illuminating has eliminated its share of Davis Besse from its capability. The unit has been shut down the past year.

According to figures compiled by the Atomic Industrial Forum, 11 new reactors totaling 11,981 MW of capacity are scheduled to come on-line this year. In 1985 seven new reactors totaling 7,903 MW entered commercial operation. Seven new reactors also began operation in 1984 that totaled 7,907 MW.

Leading nuclear utilities

- The leading nuclear utilities:
- Commonwealth Edison...8,127 MW,
 - Duke Power...6,085 MW,
 - Middle South Utilities...3,923 MW,
 - Dominion Resources...3,135 MW,
 - FPL Group (FP&L)...2,871 MW,
 - Southern Company...2,394 MW,
 - General Public Utilities...2,334 MW,
 - American Electric Power...2,130 MW,
 - Carolina Power & Light...1,955 MW,
 - Southern California Edison...1,962 MW,
 - Pennsylvania Power & Light...1,890 MW,
 - Public Service Electric & Gas...1,817 MW,
 - Philadelphia Electric...1,816 MW,

**TABLE 5
SYSTEM HEAT RATE
LEADERS—FOSSIL-FUELED
BOILERS ONLY**

Utility	Heat rate (Btu/kWh)
1. Duke Power	9,300
2. Consumers Power	9,578
3. Commonwealth Energy	9,707
4. Florida Progress (FPC)	9,782
5. American Electric Power	9,795
6. Dayton Power & Light	9,907
7. SCANA Corp.	9,918
8. Cincinnati Gas & Electric	9,960
9. Toledo Edison	9,981
10. Allegheny Power Systems	10,016

TYPE OF GENERATION IN THE SYSTEM

Company	Fossil			Hydro & Pump Storage			Combustion Turbines			Nuclear		
	MW	%	Last Year Change MW	MW	%	Last Year Change MW	MW	%	Last Year Change MW	MW	%	Last Year Change MW
Allegheny Power Systems	7,036	89	-11	902	11	+840	0	0	0	0	0	0
American Electric Power	19,800	87	0	836	4	0	61	1	-24	2,130	9	0
Atlantic Electric	842	57	+42	0	0	0	368	25	0	319	18	0
AZP Group	2,523	83	-121	6	1	0	501	16	0	0	0	0
Baltimore Gas & Electric	3,038	56	0	0	0	0	757	14	+50	1,650	30	0
Boston Edison	1,871	67	+64	0	0	0	239	8	-8	670	24	0
Carolina Power & Light	5,068	81	0	218	3	+4	1,018	12	0	1,955	24	0
Central	555	84	+16	0	—	—	108	16	+12	0	—	—
Central & South West	12,729	100	-30	0	0	0	0	0	0	0	0	0
Central Hudson Gas & Electric	899	92	+5	43	4	0	38	4	+5	0	0	0
Central Illinois Light	1,106	97	-149	0	0	0	30	3	-2	0	0	0
Central Illinois Public Service	2,806	99	+33	0	0	0	3	1	+3	0	0	0
Central Louisiana Electric	1,361	100	0	0	0	0	0	0	0	0	0	0
Central Maine Power	590	61	0	331	34	+8	44	5	+1	0	0	0
Central Vermont Public Service	25	26	+1	41	42	+1	32	32	0	0	0	0
Cincinnati Gas & Electric	3,555	88	0	0	0	0	475	12	0	0	0	0
Cleveland Electric Illuminating	2,877	89	-3	305	9	0	62	2	0	0	0	-447
Commonwealth Edison	9,703	49	0	624	4	0	1,331	7	0	8,127	41	+1,120
Commonwealth Energy	1,024	94	+1	0	0	0	62	6	0	0	0	0
Consolidated Edison	6,417	69	-135	0	0	0	2,075	22	+25	849	9	0
Consumers Power	4,045	64	-148	1,089	17	0	357	6	-120	789	13	-37
Dayton Power & Light	2,291	92	0	0	0	0	210	8	+27	0	0	0
Delmarva Power & Light	1,788	79	51	0	0	0	170	7	0	319	14	0
Detroit Edison	7,830	87	+599	918	10	0	525	3	-5	0	0	0
Dominion Resources	6,147	54	+127	1,586	14	+1,260	550	5	+111	3,135	27	+11
Duke Power	6,603	45	0	1,422	10	+30	599	4	0	6,085	41	+1,145
Duquesne Light	2,763	88	0	0	0	0	0	0	0	385	12	0
Eastern Utilities Associates	509	92	0	0	0	0	47	8	0	0	0	0
El Paso Electric	920	93	0	0	0	0	99	7	0	0	0	0
Empire District Electric	412	66	0	18	3	0	195	31	0	0	0	0
Florida Progress (FPC)	4,177	71	+27	0	0	0	1,083	18	-488	667	11	-94
FPL Group (FP&L)	8,893	67	+707	0	0	0	1,950	15	-27	2,871	18	+48
General Public Utilities	4,129	50	+28	345	4	+12	1,487	18	0	2,334	28	-22
Gulf States Utilities	5,821	92	-443	0	0	0	90	2	0	0	0	0
Hawaiian Electric	1,274	86	0	0	0	0	220	14	+1	0	0	0
Houston Industries	11,192	89	+91	0	0	0	1,184	11	+10	0	0	0
Idaho Power	992	38	+134	1,576	80	-95	50	2	0	0	0	0
Illinois Power	3,562	95	0	2	—	—	176	5	+2	0	0	0
Interstate Power	895	94	0	0	0	0	55	6	0	0	0	0
Iowa Electric Light & Power	541	52	0	0	0	0	157	15	+1	350	33	0
Iowa Resources	1,054	79	0	0	0	0	275	21	0	0	0	0
Iowa-Illinois Gas & Electric	1,081	70	4	3	1	0	67	4	-1	384	25	0
IPALCO	2,322	97	0	0	0	0	74	3	0	0	0	0
Kansas City Power & Light	2,037	69	-70	0	0	0	370	13	0	530	18	+530
Kansas Gas & Electric	1,880	77	-180	0	0	0	23	1	0	530	22	+530
Kansas Power & Light	2,191	87	-151	0	0	0	339	13	0	0	0	0
Kentucky Utilities	3,090	97	+2	25	1	+1	56	2	0	0	0	0
Long Island Lighting	12,075	98	—	0	0	0	217	2	—	0	0	0
Louisville Gas & Electric	2,133	95	0	79	1	+79	108	4	+1	0	0	0
Madison Gas & Electric	406	69	0	0	0	0	98	15	+4	94	16	-1
MDU Resources Group	349	80	+1	0	0	0	86	20	0	0	0	0
Middle South Utilities	12,143	73	+521	70	1	+1	537	3	+150	3,923	23	+2,229
Midwest Energy	1,038	83	-15	0	0	0	207	17	-2	0	0	0
Minnesota Power	1,280	92	-5	109	8	0	0	0	0	0	0	0
Montana Power	789	60	0	520	40	0	5	—	0	0	0	0
Nevada Power	1,312	75	0	0	0	0	429	26	-9	0	0	0
New England Electric	2,658	68	+9	1,175	30	0	57	2	+1	0	0	0
New York State Electric & Gas	2,366	97	-10	65	2	+5	7	1	-1	0	0	0
Niagara Mohawk Power	3,706	70	0	617	12	-77	310	7	+59	610	11	+32
Northeast Utilities	2,485	43	0	1,275	22	0	482	9	+19	1,520	26	0
Northern Indiana Public Service	2,801	92	0	10	1	0	241	7	0	0	0	0
Northern States Power	3,298	54	+34	179	4	-45	988	16	+60	1,547	26	+8
Ohio Edison	4,813	89	+22	0	0	0	164	3	+25	425	8	0
Oklahoma Gas & Electric	5,597	99	-1	0	0	0	59	1	0	0	0	0
Orange & Rockland Utilities	902	89	0	34	3	0	74	7	0	0	0	0
Orter Tail Power	506	85	+2	4	1	0	87	15	0	0	0	0
Pacific Gas & Electric	8,574*	61	+47	3,695	26	+1,183	394	4	0	1,199	9	+1,199
Pacificorp	3,052	75	0	975	24	0	0	0	0	27	1	0
Pennsylvania Power & Light	5,785	89	0	146	1	0	539	8	0	1,890	23	+945
Philadelphia Electric	3,201	42	-166	1,290	17	0	1,280	17	0	1,816	24	0
Portland General Electric	1,130	44	0	601	23	0	116	5	+6	729	28	0
Potomac Electric Power	4,809	89	0	0	0	0	652	11	+86	0	0	0
Public Service Electric & Gas	4,312	48	0	165	2	0	2,713	30	+13	1,817	20	0
Public Service of Colorado	2,549	84	+87	85	3	-181	187	6	+1	200	7	0
Public Service of Indiana	5,411	95	0	55	1	0	221	4	0	0	0	0
Public Service of New Hampshire	1,098	85	+2	69	6	0	118	9	0	0	0	0
Public Service of New Mexico	1,281	98	-38	0	0	0	26	2	0	0	0	0
Puget Sound Power & Light	683	40	0	310	19	0	703	41	+1	0	0	0
Rochester Gas & Electric	587	52	0	47	4	0	29	3	0	470	41	0
San Diego Gas & Electric	1,854	69	0	0	0	0	333	12	0	617	19	+2
Savannah Electric & Power	537	88	0	0	0	0	72	12	0	0	0	0
SCANA Corp.	2,286	39	-132	756	19	0	110	7	+75	590	15	-10
Sierra Pacific Resources	716	88	+125	12	1	0	87	11	+1	0	0	0
Southern California Edison	10,072	69	+298	942	6	+13	1,620	12	+12	1,962	13	0
Southern Company	19,586	76	+653	2,604	10	+219	1,131	4	0	2,394	10	+19
Southern Indiana Gas & Electric	782	85	0	0	0	0	135	15	0	0	0	0
Southwestern Public Service	3,945	97	+465	0	0	0	106	3	0	0	0	0
Taco Energy	2,882	96	+427	0	0	0	158	5	0	0	0	0
Texas Utilities	17,804	100	0	0	0	0	0	0	0	0	0	0
TNP Enterprises	0	0	-39	0	0	0	49	100	+27	0	0	0
Toledo Edison	1,213	71	+14	0	0	0	77	4	+11	421	25	-2
Tucson Electric Power	1,113	84	+5	0	0	0	218	16	0	0	0	0
Union Electric	5,580	72	+1	631	8	0	386	6	+5	1,109	14	-11
United Illuminating	1,124	92	-96	0	0	0	22	2	0	0	0	0
Utah Power & Light	2,996*	95	-44	127	4	0	19	1	0	0	0	0
Utilicorp United	650	71	+40	0	0	0	268	29	0	0	0	0
Washington Water Power	344	25	0	946	68	0	101	7	0	0	0	0
Wisconsin Electric Power	3,267	72	+866	7	0	0	263	6	-25	970	22	0
Wisconsin Power & Light	1,457	77	266	42	2	0	177	9	+1	215	11	+1
Wisconsin Public Service	1,280	73	+35	56	3	+2	189	11	+32	217	13	+2

*Includes geothermal capacity.

Canadian electrical use exceeded 1985 estimates

MONTREAL—Consumption of electricity in Canada rose 5.8 percent to a record 407-billion kilowatthours in 1985, reflecting a continuing resurgence of the Canadian economy.

The increase more than doubled the 2.6 percent growth projected for the year, and indicates solid growth in each of the country's provinces. As a result of increased load forecasts, the projected national growth rate until 1990 has been raised to 3.3 percent.

The improvement in electrical usage was reported in a presentation at the Canadian Electric Association's

spring meeting by the Department of Energy, Mines and Resources.

Exports gained 10.7 percent

The report indicated that exports of electricity to the U.S., which represent about 10 percent of Canadian electrical demand, rose 10.7 percent, to 41.3-billion kWh. About 30 percent of the exports were sold under firm power contracts, up from about 14 percent of all exports five years ago.

Two-thirds of the exports were hydroelectric generation-based. Net revenues from exports climbed to

\$1.4-billion, a gain of 10.9 percent. British Columbia and Saskatchewan led in gains, BC increasing its exports by 142 percent, to 410.7 billion kWh, and Saskatchewan gaining by 115 percent. Ontario and Quebec, normally accounting for about 60 percent of exports, lost ground, falling 16 and 15 percent, respectively. BC now is providing about 26 percent of Canadian power exports to the U.S.

Generating capacity increases

Canadian generating capacity gained 3.5 percent in 1985. Eleven

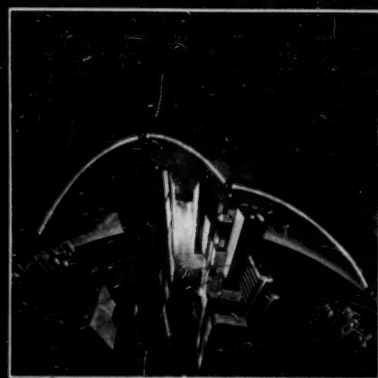
new units came on-line. Ontario Hydro led in capacity additions with its 206 MW of coal-fired capacity and 1346 MW of new nuclear facilities in two units. Hydro Quebec added 1178 MW of hydro capacity on James Bay and BC Hydro, Saskatchewan Power and Newfoundland and Labrador Hydro added 716 MW in three hydroelectric facilities.

Hydro power now accounts for 57 percent of total Canadian capacity. Conventional thermal capacity fell to 31 percent and nuclear totalled 11 percent.

Capital spending down

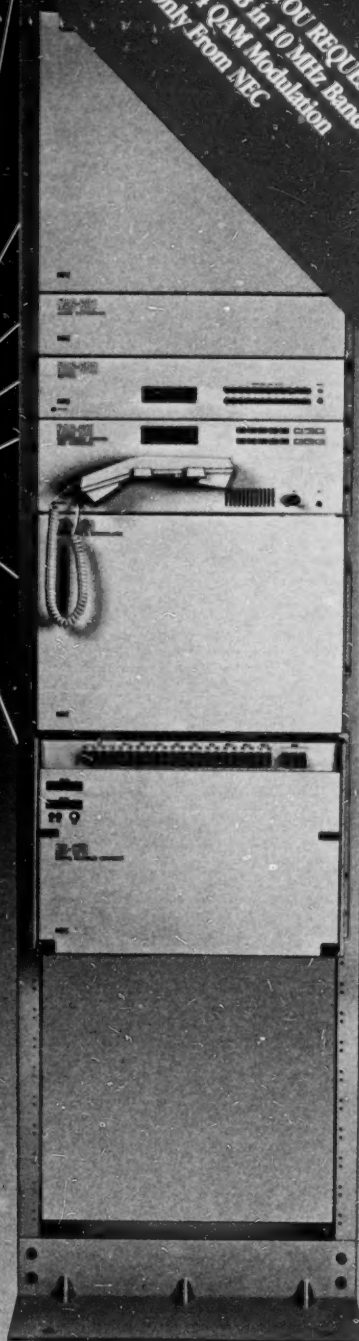
Canadian utilities spent \$6.3-billion for capital improvements in 1985, the smallest amount since 1980, when it was \$6.1-billion. According to the Canadian Electric Association, capital spending is expected to remain fairly stable now through 1993.

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Work on fiber optic system to proceed

MADISON, WI—Construction will go forward on a \$40 million fiber optics telecommunications system stretching between Chicago and Minneapolis, according to a partnership of utilities financing the project.

Norlight, a partnership of subsidiaries of five electric utilities in Wisconsin and Minnesota, hopes eventually to have a 650 mile system that will carry high-speed data and voice transmissions linking Milwaukee, Madison, LaCrosse, Eau Claire, Minneapolis, Chicago, Rockford and DeKalb.

The Wisconsin Public Service Commission recently set requirements that Norlight must meet before it can begin construction in the state. The commission said that Norlight should pay the utilities \$2.6 million for the first 203 miles of its system. That comes out to \$13,445 per mile. Initially, the venture wants to use 24 miles of Madison Gas & Electric lines and 179 miles of Wisconsin Power & Light Company lines.

Other partners are Wisconsin Public Service Corp., Dairyland Power Cooperative, and Minnesota Power & Light. The partnership plans to place its fiber optic cables into the core of the electric utilities' shield wires.

Norlight President and CEO Jim Rice said that although it disagrees with some aspects of the PSC decision, the venture will proceed.

First Utility Fault and Disturbance Analysis Conference to be held

ROCHESTER, NY—The first annual Utility Fault and Disturbance Analysis Conference for utility engineers, will be held October 30-31 in Denver, CO.

The conference is sponsored by Rochester Instruments, Inc. Topics to be covered include: Integrating transient fault data with Sequence-of-Events data; Analysis of transient faults; and Research and case histories of disturbance events.

An open forum will be held at the end of the first day to examine the various analysis philosophies and to exchange ideas.

Registration fee is \$225 before October 1, and \$250 after that date.

For more information contact Eileen Greenberg or Stephen Byers at Rochester Instrument Systems, Inc., 255 N. Union Street, Rochester, NY, 14605, or call (716) 263-7700.

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